Remarks:

Applicant has read and considered the Office Action dated September 1, 2009 and the references cited therein. Claims 1-24 are currently pending. Reconsideration is hereby requested.

Claims 1 to 9 were rejected under 35 U.S.C. § 103(a) as being obvious over GERSZBERG et al. in view of PAPADOPOULOS et al.

GERSZBERG discloses an analog front-end (ISD/IRG 22) for interconnecting a network communication device ("Customer Premise Equipment" 10, fig. 1A) to a two-conductor based network (Cable 30 connected to a Telephone central Office 34, fig 1A) comprising :

input and output leads for connection to the network communication devices (fig 1A, bold lines between 10 and 22; fig 2, lines "n" except line 126-1;

network leads for connection to the two-conductor based network (Fig 1A, line "n" nb 126-1 and column 9, lines 8-15);

a power circuit for operative power supply of electronics components of the analog front-end (Fig 8, block "Power supply").

GERSZBERG fails to disclose:

a common mode filter circuit coupled between the first terminal set of the coupling circuit and the network leads;

a coupling circuit having first, second and third terminal sets, a first coupling channel between the first and second terminal sets, a second coupling channel between the first and third terminal sets, the first and second coupling providing isolation, impedance matching and energy transfer between corresponding ones of the terminal,

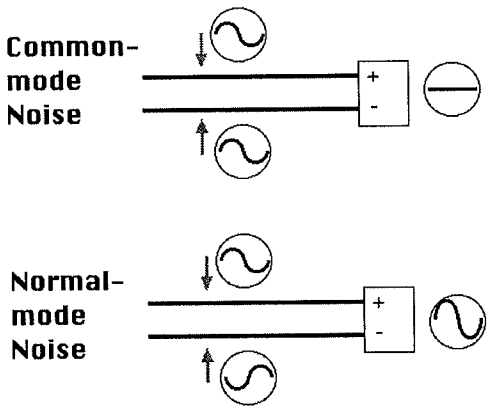
an amplifier having an input connected to the input leads and an output connected to the second terminal of the coupling circuit,

an attenuator having an input connected to the third terminal set of the coupling circuit and an output connected to the output leads.

Applicant disagrees with the contention of the Office Action that GERSZBERG discloses a common mode filter.

The text cited (column 10, lines 24-33) only discloses that the ISD/IGR 22 may selectively filter information broadcast by a part of the central telephone office 34 between music or financial information (col. 9, lines 33-35). That means that ISD/IRG 22 filters the cognitive content of information. This is totally different than a common mode signal, which is a signal applied equally to the inputs of a balanced amplifier stage or other differential device.

GERSZBERG 'selectively filter the information' is related to the normal mode noise (differential) while the common mode filter of WO 2005/067142 A1 art is related to common mode noise.



Applicant further disagrees with the Office Action's characterization of GERSZBERG:

GERSZBERG discloses a ruggedized analog front-end for:

interconnecting a network communicative device to a two-conductor based network (column 4, See Fig. 1A, communication as well as the network architecture employing a hybrid fiber, twisted-pair architecture is shown)

The present application states (see page 1 lines 6-8):

The present invention relates to an analog front-end for interconnecting a network communicative device to a two-conductor based network, and a network system operable in a harsh environment like in train or transit vehicle or wayside.

GERSZBERG art is not "ruggedized." "Ruggedized" in the present application means capable to operate in a train-like or other harsh environment (See Abstract and Field of the Invention). The present application is rail related (harsh environment).

The Office Action further states:

comprising:

input and output leads for connection to the network communicative device (column 29, in each of the individual taps (leads) the cable system has power in the which is distributed through the center of the coaxial cable whereas the signal is distributed along the outer edge of the center coaxial cable in a skin effect since the high frequencies are distributed towards the outer edge of the cable. In passing the power through each of the taps, the cable is actually severed at each tap and a circuit board is interconnected between the input and output of the tap allowing for the power to be filtered as well as isolation the high frequency cable system into the house)

Applicant respectfully disagrees. At page 7, lines 4-7, it is stated that:

Referring to Figure 5, ruggedization is achieved through a ruggedized analog front-end for interconnecting a network communicative device 2, such as a HomePNA device, to a two-conductor based network 4. The front-end has input and output leads 6, 8 for connection to the network communicative device 2.

In claim 1, the input and output leads are used for interconnecting a network communicative device to a two-conductor based network. The input and output leads interface directly to the network (two conductor based network). As shown in Figure 1, several network devices can be connected to the two-conductor based network. Applicant disagrees with the contention that the input and output leads for connection to a network communicative device are disclosed in GERSZBERG because of GERSZBERG at column 29 teaches two leads: power through the center of the coaxial cable and signal around the edge of coaxial cable and some

filtering. However, this is solely means of transporting a signal over a coaxial cable with some filtering, not for interconnecting a network communicative device.

The Office Action states that PAPADOPOULOS in the same field of invention teaches a coupling circuit having first, second and third terminal sets, a first coupling channel between the first and second terminal sets, and a second coupling channel between the first and third terminal sets, the first and second coupling channels providing isolation, impedance matching and energy transfer between corresponding ones of the terminal sets (column 2, An isolation circuit (coupling circuit) is provided coupled to both the first and second output terminal sets for preventing shunt loading of the first end second pairs of wires and for providing electrical impedance characteristics to the first and second pairs of wires representative of an open circuit);

an amplifier having an input connected to the input leads, and an output connected to the second terminal set of the coupling circuit (column 2, An amplifier is coupled to the second connector and to the isolation circuit, the amplifier being powered by the output voltage);

an attenuator having an input connected to the third terminal set of the coupling circuit, and an output connected to the output leads (See Fig 1, column 3, See FIG 1, a telephone headset interface circuit 10 includes a transmit and receive amplifier 12, adapted for coupling to a headset 14, in order to adjust the amplitude of signals (attenuator) coupled between the headset 14 and telephone lines).

Applicant asserts that PAPADOPOULOS discloses that: (see Abstract)

A telephone headset interface circuit is coupled to a telephone line to extract power for use by a headset amplifier and is particularly adapted for use with telephone handsets having dynamic or electret microphones.

Conversely, the present description (on page 1, lines 4-8) states:

The present invention relates to an analog front-end for interconnecting a network communicative device to a two-conductor based network, and a network system operable in a harsh environment like in train or transit vehicle or wayside.

Applicant disagrees that PAPADOPOULOS is in the same field as GERSZBERG. GERSZBERG is a system architecture between at least one local house, or feeder to a house , network architecture using a hybrid optical fiber and twisted pair and/or coaxial cable connected multiplexing device (see "field of invention"). PAPADOPOULOS relates to a telephone headset apparatus, used by workers as travel agents or telephone salespersons for hand free operation (col. 1, lines 7-19), connected to a phone and a switch. Applicant asserts that the fields are quite different, even if they use an apparatus like a telephone.

The field of the present invention is high speed digital network communication. This is fundamentally different from GERSZBERG analog voice communication architecture and PAPADOPOULOS telephone headset.

Applicant asserts that , PAPADOPOULOS does not teach a common mode filter.

Moreover, PAPADOPOULOS teaches two coupling circuits that provides isolation, but the position in the Office Action on which one is taken in account is not clear. Against claim 1 the Office Action cites col. 2, lines 60-66 of PAPADOPOULOS, which refers to the alternative embodiment comprising a coupling circuit 90. Against claim 2, which refers exclusively to the coupling circuit of the present invention, the Office Action cites col. 9, lines 16-25, which refers to the DC isolation and regulator circuit 24 of PAPADOPOULOS. Applicant asserts that the characterization and basis for rendering these limitations is not clear and requests clarification.

Regardless, counter-argument is done for each of these isolation circuit, along with the Amplifier and Attenuator, as they are connected to this circuit.

With regard to the contention in the Office Action that the "coupling circuit is formed by DC isolation and regulator circuit 24," Applicant asserts that this coupling circuit is shown in the two embodiments of PAPADOPOULOS. This circuit is shown in detailed in Fig. 4 and has a first terminal set (lines V_{RS+}, V_{RS-}) and a second terminal set (lines V_{AMP+}, V_{AMP-}), a first coupling channel between the first and second terminal sets providing DC isolation between first and second terminal sets.

The word "terminal" in PAPADOPOULOS refers to a single line (see fig. 4), whereas the word "terminal" in the present invention refers to several lines (see Fig. 7 of the present invention) so it's an error to use the words without referring to their context and respective meanings. Fig 4 shows a transformer T2 with only one primary coil, and only one secondary coil. Applicant fails to see the third terminal set and the second coupling channel stated in the Office Action.

In addition, this DC isolation and regulator circuit 24 does not provide impedance matching. The Office Action states in the rejection (page 5) that this is the LCR circuits that provide the impedance matching (see also col. 5, line 66 to col. 6, line 7). So, if the LCR circuits provide impedance matching, this is not provided by the DC isolation unit and regulator circuit 24.

Applicant therefore asserts that PAPADOPOULOS fails to teach a coupling circuit with a third terminal set and a second coupling channel between the first and third terminal set. Moreover, this circuit does not provide impedance matching.

Taking in account that the coupling circuit is the DC isolation and regulator circuit 24, PAPADOPOULOS discloses an amplifier 12 having a first input connected to the headset 14 (or a second input connected the switch 26), and an output connected to the second terminal (lines V_{AMP+}, V_{AMP+}) of the coupling circuit (DC isolation and regulator circuit 24).

However, PAPADOPOULOS fails to disclose or even suggest any attenuator, except if the position is taken as stated in the Office Action in which the amplifier 12 is also the attenuator. Based on this hypothesis, PAPADOPOULOS discloses an attenuator (12) having an input connected to the second terminal (lines V_{AMP+}, V_{AMP+}) of the coupling circuit (DC isolation and regulator circuit 24) and an output connected to an output leads (one of the lines connected either to the switch or the headset). However, PAPADOPOULOS must fail to teach an attenuator which input is connected to a third terminal set of the coupling circuit.

In the present invention, there is disclosed an attenuator (page 8, paragraph 30) to attenuate the signals received from network 4 before they are sent to network communicative device 2. The signals need to be attenuated because they were amplified in order to be sent to over a two-conductor cable in a harsh environment. This is fundamentally different from the PAPADOPOULOS circuit.

As a result, even by modifying the teaching of GERSZBERG by including the teaching of PAPADOPOULOS, one of ordinary skill in the art would fail to achieve the analog front-end as recited by claim 1.

The coupling circuit (90) is shown only in the second embodiments of PAPADOPOULOS. This circuit is shown in detailed in Fig. 9. It comprises:

a first terminal set (positive lines 44a, 44d), a second terminal set (positive lines 46a, 44c), a third terminal set (negative lines 46a, 46d), a fourth terminal set (negative lines 46b, 46c) and a fifth terminal set (positive line 48 and negative line 50),

a first coupling channel between the first and second terminal sets, a second coupling channel between the third and the fourth terminal set,

the first and second coupling channels providing isolation (due to the space between coils).

Applicant asserts that PAPADOPOULOS fails to teach a coupling circuit having a second coupling channel between the first and the third, or even between the first and the fourth, or even between the first and the fifth terminal sets.

Taking in account that the coupling circuit is the coupling circuit 90, PAPADOPOULOS only teaches an amplifier 12 having an input (lines V_{AMP+}, V_{AMP+}) connected to the DC isolation and regulator circuit (fig. 5, 7 and col. 9, lines 55-65) and two outputs connected to the switch 26 and the headset 14. PAPADOPOULOS therefore fails to teach that the coupling circuit is connected to the second terminal set of the coupling circuit 90, no matter what is considered the second terminal set.

PAPADOPOULOS still fails to disclose any attenuator, unless the amplifier 12 is also the attenuator. Based on this hypothesis, PAPADOPOULOS discloses an attenuator (12) having an input connected to the second terminal set of the DC isolation and regulator circuit 24, and an output connected to an output leads (one of the lines connected either to the switch or the headset). Even by considering the coupling circuit 90, none of these terminals is connected to an attenuator. Applicant asserts that PAPADOPOULOS fails to teach an attenuator which input is connected to a third terminal set of the coupling circuit. As a result, even by modifying the

teaching of GERSZBERG by including the teaching of PAPADOPOULOS, one of ordinary skill in the art fails to achieve the analog front-end as recited in claim 1.

A speedy and favorable action in the form of a Notice of Allowance is hereby solicited. If the Examiner feels that a telephone interview may be helpful in this matter, please contact Applicant's representative at (612) 336-4728.

Please consider this a PETITION FOR EXTENSION OF TIME for a sufficient number of months to enter these papers or any future reply, if appropriate. Please charge any additional fees or credit overpayment to Deposit Account No. 13-2725.

Respectfully submitted,

MERCHANT & GOULD P.C.

Dated: 2/1/10

By: _____
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